

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of

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	)	
Request by The City of Boston for Waiver of the	)	PS Docket No. 06-229
Commission's Rules to Deploy a 700 MHz Public	)	
Safety Interoperable Broadband Network That	)	
Can Be Integrated into the Public-Private	)	
Partnership	)	

**REQUEST FOR WAIVER**

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**Respectfully submitted on behalf of  
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**REQUEST FOR WAIVER**

Pursuant to Section 1.925(b) of the rules of the Federal Communications Commission ("FCC" or "Commission"), The City of Boston respectfully requests a waiver of the Commission's rules to enable it to deploy an interoperable public safety broadband network in the 700 MHz public safety allocation. As shown below, the requested waiver will serve the public interest by improving communications for first responders today without sacrificing any of the policy goals the Commission is seeking to achieve in its 700 MHz rulemaking.

The City of Boston has identified public safety interoperable broadband services as a priority and is prepared to make the capital investment necessary to deploy a network as quickly as possible in the 700 MHz public safety broadband spectrum. As demonstrated below, our stand-alone network will meet the technical specifications the FCC has proposed for the shared commercial/public safety system, and it will be capable of being integrated into any eventual shared commercial/public safety network developed under the Commission's rules ("Shared Wireless Broadband Network"), regardless of technology ultimately chosen. The Commission should make clear that we will receive reasonable compensation for the network once it is integrated into the Shared Wireless Broadband Network. The City of Boston asks the

Commission to act quickly on this request for waiver. Grant will enable rapid public safety broadband deployment, while the shared commercial/public safety approach currently under consideration remains years from deployment.

## I. INTRODUCTION

It has now been eleven years since Congress directed that 24 MHz of spectrum in the Upper 700 MHz Band be allocated for public safety communications. Despite the Commission's significant efforts to establish a 700 MHz Public/Private Partnership for interoperable public safety broadband communications throughout the United States, achievement of this goal remains far off, and local jurisdictions are without a clear path to achieving interoperable public safety broadband communications.

Though the Commission recently proposed revised rules that retain the Public/Private Partnership concept and set forth detailed technical and operational rules to govern the Shared Wireless Broadband Network,<sup>1</sup> it is unclear whether the next Upper 700 MHz D Block auction will be a success or whether there will be nationwide coverage.<sup>2</sup> Moreover, the two air interface technologies contemplated by the Commission – WiMAX and LTE – are still in their nascent stages, meaning that the deployment of the Shared Wireless Broadband Network will be years away.

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<sup>1</sup> See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands: Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, WT Docket No. 06-150 and PS Docket No. 06-229, *Third Further Notice of Proposed Rulemaking*, FCC 08-230 (rel. Sept. 25, 2008) ("Third Further Notice").

<sup>2</sup> The City of Boston has participated in the Commission's pending 700 MHz D Block proceeding, joining with public safety officials and CIOs from Cook County, IL; the City and State of New York; the City and County of San Francisco, CA; the City and County of Denver CO; and the cities of San Jose, CA and Seattle, WA in a letter to Chairman Martin. See Letter to The Honorable Kevin J. Martin from Public Safety Officials and CIO Task Force on Wireless Spectrum Allocation, WT Docket No. 06-150 and PS Docket No. 06-229 (filed October 29, 2008).

In the meantime, first responders still need to have access to state-of-the-art communications capabilities, and our citizens are put at risk each day the initiation of public safety broadband services is delayed.

The Commission's current 700 MHz rules reserve to the Upper 700 MHz D Block licensee "the exclusive right to build and operate the Shared Wireless Broadband Network."<sup>3</sup> There are two exceptions to this general rule, which allow local public safety entities, with the approval of the Public Safety Broadband Licensee, to construct broadband networks at their own expense:

- (1) in areas where the Upper 700 MHz D Block licensee has committed in a Network Sharing Agreement to build out a network by a certain (later) date, and
- (2) in areas where the Upper 700 MHz D Block licensee is not required by a Network Sharing Agreement to build out.

Neither of these exceptions provides jurisdictions with the ability to immediately deploy broadband services that will benefit public safety and the public at large. The *Third Further Notice* acknowledges this fact and seeks comment on a proposal to revise the early build-out rules to allow jurisdictions to deploy local networks that can be integrated into the regional or national network, with commercially reasonable compensation provided once they are integrated. The City of Boston supports such a revised rule and believes that the Commission should modify its early deployment policy in light of the reality that deployment of a public-private solution in the 700 MHz band is several years away. In the absence of quick action to revise the early build-out rules as proposed, however, the Commission should ensure that we can begin deployment of

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<sup>3</sup> 47 C.F.R. §§ 27.1330 & 90.1430(a).

a public safety broadband network in the 700 MHz band as quickly as possible by granting the instant waiver request as soon as possible.<sup>4</sup>

The City of Boston is currently in the process of designing and deploying a Public Safety Wireless Network to support our first responders – the Boston Police Department, Boston Fire Department, Public Works Department, MIS and Boston Emergency Medical Services.<sup>5</sup> Because of unavailability of 700 MHz, the City will be forced to deploy its public safety broadband network within 4.9 GHz beginning in January of 2009. Though the contemplated 4.9 GHz network would be an improvement over the current absence of a public safety broadband network, it has some serious potential problems: 1) interoperability is undermined by the lack of technical standards and the absence of regional planning;<sup>6</sup> 2) the band's poor propagation characteristics undermine the large-area coverage required to support public safety operations in the City, and 3) the cost to deploy and maintain this system is higher than expected due to the large amount of infrastructure required to maintain adequate coverage. Use of the 700 MHz band would allow us to achieve greater interoperability and cost effectiveness, and would increase coverage because of the 700 MHz band's superior propagation characteristics. Grant of the requested waiver is needed to achieve these benefits.

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<sup>4</sup> If the Commission quickly adopts and makes effective Alcatel-Lucent's proposed amendments to the early build-out rules, this waiver request would be rendered moot.

<sup>5</sup> It must be noted that our system is intertwined with Massachusetts State Police, City of Cambridge, and Massachusetts Port Authority, which, among other things, manages the Logan Airport, a very major hub in the entire New England region.

<sup>6</sup> A prime example of this problem is found in the Cities of Boston and Brookline, which are adjacent to one another. Each has obtained licenses to use the 4.9 GHz spectrum, but the two cities have no ability to interoperate over this spectrum because of the absence of a technical standard.

## **II. THE CITY OF BOSTON HAS IDENTIFIED PUBLIC SAFETY BROADBAND COMMUNICATIONS AS A PRIORITY AND IS PREPARED TO DEPLOY AN INTEROPERABLE BROADBAND NETWORK IN THE 700 MHz BAND.**

A brief survey of the current public safety communications situation in The City of Boston makes clear that there is a dire need for the broadband services that a newly-deployed 700 MHz public safety broadband system would supply:

- The Boston Police Department does not currently provide commercial wireless broadband service to its patrol fleet due to the prohibitively high recurring monthly charges that would be incurred with commercial wireless service. Because of the lack of connectivity in the Boston Police, police officers must return to their district stations to access routine criminal justice information. This information would be readily available to officers in the field if broadband data access was available. The Boston Police Command Staff has made it a priority to implement wireless broadband to increase the time that officers are kept on the street.
- Currently the Boston Fire Department uses commercial broadband service for all front line Fire Department Companies, but this service is costly and the department plans to migrate to the city-operated Public Safety Wireless Network when it is deployed to reduce operating expenses.
- Boston Emergency Medical Services currently employs commercial wireless broadband service for certain applications, but would migrate to a 700 MHz public safety network other applications that are currently served by low-bandwidth dedicated 800 MHz radios channels.

The City of Boston is willing to make the capital investment necessary to deploy a public safety broadband network in advance of the establishment of the Shared Wireless Broadband Network. Doing so would enable the fire and EMS departments to avoid costly monthly charges incurred for public safety deployments that are currently making use of commercial broadband services, and would enable the Boston Police Department to make use of mobile broadband services for the first time. To achieve these benefits, however, we need the Commission to (1) waive its rules to assure that we will have the authority to operate our own network until it can be integrated into the Shared Wireless Broadband Network, and (2) make clear that we will receive reasonable compensation for network elements that are integrated. If approved

expeditiously, the deployment of a 700 MHz broadband network could begin on June 1, 2009 and would be completed in a two-phased approach. Installation would be complete by June 2010.

As demonstrated below, our stand-alone network will meet all of the technical specifications the Commission recently proposed to require for the Shared Wireless Broadband Network, and it will be capable of being integrated into any eventual shared network regardless of the technology chosen for that network. The public interest thus would be served by a grant of the requested waiver, and we request that favorable action on this request be taken quickly.

### **III. THE REQUESTED WAIVER IS IN THE PUBLIC INTEREST AND SHOULD BE GRANTED.**

The public interest will be served by allowing The City of Boston to engage in early deployment. To obtain a waiver of the Commission's rules, a petitioner must demonstrate either that (1) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case, and that a grant of the waiver would be in the public interest, or (2) in view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.<sup>7</sup>

Under either of these standards, the requested waiver allowing The City of Boston to deploy a public safety broadband network in advance of the contemplated Shared Wireless Broadband Network is justified.

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<sup>7</sup> 47 C.F.R. § 1.925(b)(3). Waiver applicants face a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver. *WALT Radio v. FCC*, 413 F.2d 1153, 1157 (D.C. Cir. 1969) (*WALT Radio*), *aff'd*, 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972).

**A. Grant of the Waiver Will Enable The City of Boston to Deploy an Interoperable Broadband Network to Serve First Responders, Without Undermining the Commission's 700 MHz Public-Private Partnership.**

The tragic events of September 11, 2001 and Hurricane Katrina made clear that public safety entities need more interoperable communications capabilities. Regardless of whether the recently proposed rules may succeed in attracting one or more commercial D Block licensees, the reality is that the deployment of a nationwide network from which local public safety entities can obtain broadband services is likely years away. The City of Boston is willing commit resources to bridge this gap so that its first responders can utilize broadband technology to protect life and property immediately.

In Washington, DC, the National Capital Region public safety broadband network demonstrates that public safety entities can make use of this valuable 700 MHz spectrum today in advance of a Public/Private Partnership deployment. The City of Boston should be afforded a similar opportunity.

While we wait for a shared commercial/public safety network to be developed, the public interest requires that local authorities like The City of Boston be allowed to deploy their own interoperable, broadband public safety communications networks. In these unique circumstances, waiver of the rules limiting such deployment to the Upper 700 MHz D Block licensee will serve the public interest.

**B. The Network Will Be Robust and Will Satisfy All of the Technical Specifications Proposed by the Commission in the *Third Further Notice*.**

The City of Boston plans to deploy an EV-DO Rev.A network to support public safety operations. This EV-DO Rev.A system will be deployed on a paired assignment of 1.25 MHz wide channels in the public safety broadband block between 793-798 MHz for mobile



transmission and 763-768 MHz for base station transmission. The equipment operating band will be compliant with Band Class 18 as specified in the 3GPP2 standards.

EV-DO Rev.A is a mature commercial open standard technology in use across the United States. Furthermore, the network deployed by The City of Boston could evolve to either LTE or WiMAX once LTE or WiMAX has sufficiently matured or is readily available.

Our proposed EV-DO Rev.A network would meet the technical specifications proposed by the Commission in its *Third Further Notice*. In particular:

- Capacity, Throughput, and Quality of Service. With user peak data rates of 3.1 Mbps (downlink) and 1.8 Mbps (uplink) and quality of service support for real-time and non-real-time IP-based applications, EV-DO Rev.A will support all the applications listed in Table 1 of proposed Section 27.1305 of the Commission's rules. The network will be designed with effective cell edge data rates exceeding those listed in Table 2 of proposed Section 27.1305. In addition, the system will provide QoS mechanisms and priority levels consistent with EV-DO Rev.A standards. Both inter- and intra-user QoS are supported by EV-DO Rev.A, including a total of 8 distinct priority levels. Since the network deployed under this waiver request is intended for operation in the public safety broadband allocation and will only serve public safety subscribers, features to preempt consumers or allow priority access to the D block described in the *Third Further Notice* will not be supported. Should they be needed at a later time, these features can be supported by updating the network's core network software.
- Security and Encryption. EV-DO Rev.A is highly secure in view of its use of spread spectrum on the air-interface and a variety of robust authorization and authentication mechanisms employing standard encryption techniques. IPSec is supported. The system will comply with commercial best practices.
- Availability, Robustness, and Hardening. The network will be designed for robustness and reliability. The system as designed is expected to exceed the 99.6% availability metric excluding radio signal coverage and scheduled maintenance downtime. Network equipment will be deployed at existing sites currently supporting the City of Boston's Land Mobile Radio networks. These sites have been hardened to meet the needs of mission-critical public safety communications. In addition, these sites provide high-capacity, highly-reliable optical transmission facilities.

**C. The Network Will Be Capable of Being Integrated into the Shared Commercial Public Safety Network.**

The interoperable public safety broadband network that would be deployed by The City of Boston under the requested waiver will be capable of being integrated into the Shared Wireless Broadband Network once it is built.

A number of City of Boston assets could be used to support a public-private network.

These include:

- Tower structures and ancillary equipment such as antennas, cables and backup power equipment; and
- Base station and core network equipment used to construct the City of Boston's wireless broadband network. Reuseable base station components include power amplifiers, I/O units, timing units, RF filters, racks, and controller cards. Reusable elements of the IP Core include AAA (Authorization Authentication & Accounting) equipment.

The City of Boston would obtain the approval of the Public Safety Broadband Licensee for any early deployment undertaken under the waiver, and would agree that, once the Shared Wireless Broadband Network is extended into our area, we would work with the D Block licensee to achieve seamless integration.

Because early-deployed networks can meet all Commission technical requirements and can be integrated into the Shared Wireless Broadband Network regardless of the technology chosen, there is no conflict between the Commission's goals in the 700 MHz rulemaking and the requested waiver. In fact, grant of the waiver would expedite achievement of the Commission's goals.

**IV. THE COMMISSION SHOULD MAKE CLEAR THAT THE CITY OF BOSTON WILL BE REASONABLY COMPENSATED FOR NETWORK COMPONENTS THAT ARE INTEGRATED INTO THE SHARED NETWORK.**

If, ultimately, the Upper 700 MHz D Block licensee chooses to deploy the Shared Wireless Broadband Network in the same area where The City of Boston has built out, it should be required to provide reasonable compensation and integrate the local network into the shared network.

In the *Third Further Notice*, the Commission asked whether it should replace its current compensation rule – which limits the compensation “to the cost that would have been incurred had the Upper 700 MHz D Block licensee constructed the network itself” – with one based on “commercially reasonable standards.”<sup>8</sup> The answer, of course, is yes. Jurisdictions like ours want to deploy much-needed broadband services so that their life-saving benefits can be enjoyed by first responders and the public at large as soon as possible. To do so, assurance must be given that once our network is integrated into the Shared Wireless Broadband Network, we will be fairly compensated. The current rule does not provide sufficient assurance because, by requiring parties with disparate interests to come to agreement regarding a matter of subjective judgment, it carries a high potential for disputes.<sup>9</sup>

Instead, the Commission should make it clear that compensation will be based on well-accepted, easily determined and commercially reasonable standards that are less susceptible to disputes.<sup>10</sup> Doing so will allow public safety entities to confidently build out networks that will

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<sup>8</sup> 47 C.F.R. § 90.1430(b)(2)(ii); *Third Further Notice* at ¶ 303.

<sup>9</sup> The Commission has offered little guidance as to how the parties would reach agreement regarding how much cost “would have been incurred” had the D Block licensee constructed the network itself in accordance with the terms of its original NSA.

<sup>10</sup> In the 700 MHz proceeding, Alcatel-Lucent has proposed an objectively-determined formula for commercially reasonable compensation. See Comments of Alcatel-Lucent, WT Docket No. 06-150 and PS Docket No. 06-229 (filed November 3, 2008), at pp. 9-12.

provide early benefits to the public they serve, while also benefitting the D Block licensee by enabling it to integrate into the Shared Wireless Broadband Network a local network that has been built out according to public safety's needs, thereby making it more attractive to public safety users. The City of Boston respectfully asks that the Commission apply a "commercially reasonable" compensation standard in the context of the instant waiver request.

## V. CONCLUSION

The public interest will be best served by allowing The City of Boston to deploy its own local public safety broadband network pending resolution of the 700 MHz Public/Private Partnership. The FCC should also make clear that if the local network is ultimately integrated into the shared network, the D Block licensee would be required to compensate The City of Boston, on a commercially reasonable basis, for the value of the network elements that are so integrated.

Especially under the present circumstances -- where the timeline for deployment of the Shared Wireless Broadband Network is as yet unknown -- the public interest requires that the Commission act quickly to promote early deployment of broadband public safety networks. The City of Boston therefore respectfully requests that the Commission promptly grant the waiver as requested herein.

Respectfully submitted,



December 10, 2008

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Thomas M. Menino, *Mayor*  
The City of Boston